WHAT IS CLAIMED IS:

1. A thermal sensor comprising:

a flat base material through which an opening is disposed; and

a heating structure having a diaphragm construction constructed by forming a supporting film on a first surface of said base material so as to cover said opening, forming a heating resistor composed of a platinum film on a portion of said supporting film above said opening, and forming a protecting film on said heating resistor,

wherein:

at least one film of said supporting film and said protecting film is constituted by a silicon nitride film having an index of refraction of less than 2.25.

2. The thermal sensor according to Claim 1, wherein:

said heating resistor is heat-treated at a temperature of greater than or equal to 600°C and less than or equal to 750°C.

3. The thermal sensor according to Claim 1, wherein:

said silicon nitride film is formed into a film which is rich in silicon compared to a stoichiometric composition ratio of an Si_3N_4 film.

4. A thermal sensor comprising:

a flat base material through which an opening is disposed; and

a heating structure having a diaphragm construction constructed by forming a supporting film on a first surface of said base material so as to cover said opening, forming a heating resistor composed of a platinum film on a portion of said supporting film above said opening, and forming a protecting film on said supporting film so as to cover said heating resistor,

wherein:

said supporting film and said protecting film are each constituted by a silicon nitride film; and

said heating structure is constructed so as to have a tensile stress of greater than or equal to 50 MPa and less than or equal to 250 MPa.

5. The thermal sensor according to Claim 4, wherein:

said heating resistor is heat-treated at a temperature of greater than or equal to 600°C and less than or equal to 750°C.

6. The thermal sensor according to Claim 4, wherein:

said silicon nitride film is formed into a film which is rich in silicon compared to a stoichiometric composition ratio of an Si_3N_4 film.

7. A thermal sensor comprising:

a flat base material through which an opening is disposed; and

a heating structure having a diaphragm construction constructed by forming a supporting film on a first surface of said base material so as to cover said opening, forming a heating resistor composed of a platinum film on a portion of said supporting film above said opening, forming a first protecting film on said heating resistor, forming an intermediate film on said supporting film so as to cover said first protecting film, and forming a second protecting film on said intermediate film,

wherein:

said supporting film, said first protecting film, and said second protecting film are each constituted by a silicon nitride film;

said heating structure is constructed so as to have a tensile stress of greater than or equal to 50 MPa and less than or equal to 250 MPa; and

said intermediate film is formed to a film thickness of less than or equal to one tenth (1/10) of a sum of a film thickness of said supporting film

and a film thickness of said second protecting film.

8. The thermal sensor according to Claim 7, wherein:

said heating resistor is heat-treated at a temperature of greater than or equal to 600°C and less than or equal to 750°C.

9. The thermal sensor according to Claim 7, wherein:

said silicon nitride film is formed into a film which is rich in silicon compared to a stoichiometric composition ratio of an Si_3N_4 film.

10. The thermal sensor according to Claim 7, wherein:

said intermediate film is a spin-on glass (SOG) film.